



SPX Bolting Systems  
Unit 4, Wansbeck Business Park  
Rotary Parkway  
Ashington  
Northumberland NE63 8QW

[spxboltingsystems.com](http://spxboltingsystems.com)

Tel: +44 (0) 1670 850580  
Fax: +44 (0) 1670 850655

Operating Instructions for:  
**PE8LXX3L**  
**PE8PXX3L**



Original Instructions

*Electric-Powered*  
**PE8 Series**  
**Hydraulic Pump**





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## Description

*The PE8 series hydraulic pumps are designed to have a maximum of 1500 bar (21,750 psi) at a flow rate of 131 cc/min (8 cu. in/min). All pumps come fully assembled, less fluid, and ready for work.*

### PE8 Series Electric/Hydraulic Pumps

#### Description

##### Universal Motor

The universal motor pump shown in Figure 1, is available in a 0.4 kW (1/2 hp). The motor is in single-phase configuration.

The universal motor offers the ability to operate at low voltage. This motor has elevated acoustic output as noted on the product labels. This motor is ideal for long service, fixed applications.

The 0.4 kW (1/2 hp), 110/115 or 220/230 VAC, 50/60 Hz single phase motor starts under load, even at reduced voltage. Current draw can be up to 11 Amps at 115V (15 Amp fuse) and 5.5 Amps at 230V (10 Amp fuse) and the sound level is rated at 82-86 dB. Operating temperatures range is -25°C to +50°C (-13°F to 122°F).

If temperatures are at extremes of the operating range, it is recommended to use hydraulic fluids that are rated for those temperatures. The weight can be up to 50lbs (23kg).



Figure 1. PE8 Series

# Safety Symbols and Definitions

The safety signal word designates the degree or level of hazard seriousness.



**DANGER:** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



**WARNING:** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



**CAUTION:** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

**CAUTION:** Used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

**IMPORTANT:** Important is used when action or lack of action can cause equipment failure, either immediate or over a long period of time.

## Safety Precautions



### WARNING:



- The following procedures must be performed by qualified, trained personnel who are familiar with this equipment. Operators must read and understand all safety precautions and operating instructions included with the pump. If the operator cannot read these instructions, operating instructions and safety precautions must be read and discussed in the operator's native language.
- These products are designed for general use in normal environments. These products are not designed for lifting and moving people, agri-food machinery, certain types of mobile machinery, or in special work environments such as: explosive, flammable, or corrosive. Only the user can decide the suitability of this product in these conditions or extreme environments. SPX Hydraulic Technologies will supply information necessary to help make these decisions. Consult your nearest SPX Hydraulic Technologies facility, refer to SPX Hydraulic Technologies Facilities in this document.



- Safety glasses must be worn at all time by the operator and anyone within sight of the unit. Additional personal protection equipment may include: face shield, goggles, gloves, apron, hard hat, safety shoes, and hearing protection.



- The owner of this tool must ensure that safety-related decals are installed, maintained, and replaced if they become hard to read.



- Shut OFF the motor before opening any connections in the system.
- The guide cannot cover every hazard or situation so always do the job with **SAFETY FIRST**.

### Pump



### WARNING:

- Do not exceed the hydraulic pressure rating noted on the pump nameplate or tamper with the internal high pressure relief valve. Creating pressure beyond rated capacities can result in personal injury.
- Retract the system before adding fluid to prevent overfilling the pump reservoir. An overfill can cause personal injury due to excess reservoir pressure created when cylinders are retracted.

## Safety Precautions continued

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- The load must be under operator control at all times.
- Do not connect pump to hydraulic system powered by another pump.

### Electric Motor



#### WARNING:



- Electrical work must be performed and tested by a qualified electrician per local directives and standards.
- Disconnect the pump from the power supply and relieve pressure before removing the motor case cover or performing maintenance or repair.
- Check the total amperage draw for the electrical circuit you will be using. *For example: Do not connect a pump that may draw 25 amps to a 20 amp fused electrical circuit.*
- Never use an ungrounded power supply with this unit.
- Changing the voltage is an involved and, if incorrectly performed, hazardous procedure. Consult the manufacturer for specific information before attempting rewiring.
- Wire pump motors for clockwise rotation when viewed from the shaft end of the motor.



- Do not attempt to increase the power line capacity by replacing a fuse with another fuse of higher value. Overheating the power line may result in fire.
- Exposing electric pumps to rain or water could result in an electrical hazard.
- Avoid conditions that can cause damage to the power cord, such as abrasion, crushing, sharp cutting edges, or corrosive environment. Damage to the power cord can cause an electrical hazard.

### Hoses



#### WARNING:



- Before operating the pump, tighten all hose connections using the correct tools. Do not overtighten. Connections should be only secure and leak-free. Overtightening can cause premature thread failure or high pressure fittings to split at pressures lower than their rated capacities.
- Should a hydraulic hose rupture, burst, or need to be disconnected, immediately shut off the pump and shift the system pressure manual release valve twice to release pressure. Never attempt to grasp a leaking hose under pressure with your hands. The force of escaping hydraulic fluid could cause serious injury.



- Do not subject the hose to potential hazard, such as fire, sharp surfaces, heavy impact, or extreme heat or cold. Do not allow the hose to kink, twist, curl, or bend so tightly that the fluid flow within the hose is blocked or reduced. Periodically inspect the hose for wear, because any of these conditions can damage the hose and possibly result in personal injury.
- Do not use the hose to move attached equipment. Stress can damage the hose and possibly cause personal injury.
- Hose material and coupler seals must be compatible with the hydraulic fluid used. Hoses also must not come in contact with corrosive material such as creosote-impregnated objects and some paints. Consult the manufacturer before painting a hose. Never paint the couplers. Hose deterioration due to corrosive materials may result in personal injury.

## Safety Precautions continued

- Avoid straight line tubing connections in short runs. Straight line runs do not provide for expansion and contraction due to pressure and/or temperature changes. See diagrams in Initial Setup section of this form.
- Eliminate stress in the tube lines. Long tubing runs should be supported by brackets or clips. Tubes through bulkheads must have bulkhead fittings. This makes easy removal possible and helps support the tubing.
- Carefully inspect all hoses and fittings prior to use. Before each use, check entire hose for cuts, leaks, abrasion or bulging of cover, or damage or movement of couplings. If any of these conditions exist, replace the hose immediately. NEVER attempt to repair the hose.

### Cylinder



#### **DANGER:**

- Do not exceed rated capacities of the cylinders. Excess pressure may result in personal injury.
- Avoid off-center loads that could damage the cylinder and/or cause loss of the load.
- Read and understand all safety and warning decals and instructions for devices attached.
- Inspect each cylinder and coupler before each shift or usage to prevent unsafe conditions from developing.
- Do not use cylinders if they are damaged, altered or in poor condition.
- Do not use cylinders with bent or damaged couplers or damaged port threads.
- Under certain conditions, the use of an extension with a hydraulic cylinder may not be advisable and could present a dangerous condition.
- Avoid pinch points or crush points that can be created by the load or parts of the cylinder.
- To help prevent material fatigue if the cylinder is to be used in a continuous application, the load should not exceed 85% of the rated capacity or stroke.
- Cylinder must be on a stable base which is able to support the load while pushing or lifting.
- To help prevent personal injury, use shims, friction material or constraints to prevent slippage of the base or load.
- Do not set poorly-balanced or off-center loads on a cylinder.
- The load can tip or the cylinder can “kick out” and cause personal injury.
- Do not use the locking collar on a threaded piston as a stop. The threads may shear resulting in loss of the load.
- If this component is used to lift or lower loads, be certain that the load is under operator control at all times and that others are clear of the load.
- Do not drop the load.
- As the load is lifted, use blocking and cribbing to guard against a falling load.
- To help prevent personal injury, do not allow personnel to go under or work on a load before it is properly cribbed or blocked. All personnel must be clear of the load before lowering.



## Safety Precautions continued

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- **Never use extreme heat to disassemble a hydraulic cylinder or ram. Metal fatigue and/or seal damage will result and can lead to unsafe operating conditions.**

### **IMPORTANT**

- **Keep the cylinder clean at all times.**
- **While at a job site, when the cylinder is not in use, keep the piston rod fully retracted and upside down.**
- **Always use protective covers on disconnected quick couplers.**
- **When mounting cylinders or rams using the internal piston rod threads, collar threads, threaded tie rods or base mounting holes, the threads must be fully engaged. Always use SAE grade 8 or better fasteners when attaching components to cylinders or rams and tighten securely.**
- **Limiting the stroke and pressure on all cylinders will prolong their life.**



# Initial Setup

1. Remove all packing materials from the assembled unit.
2. Inspect the unit upon arrival. The carrier, not the manufacturer, is responsible for any damage resulting from shipment.

## Filling the Pump Reservoir

Most pumps are shipped without hydraulic fluid in the reservoir. Hydraulic fluid may have been shipped in a separate container, but if hydraulic fluid is needed, use only approved Power Team hydraulic fluid rated at AW 46 47 cSt @ 38°C (237 SUS @ 100°F). If low temperature requirements are needed, use hydraulic fluid 5.1 cSt @ 100°C (451 cSt @ -40°C).

1. Clean the area around the filler cap to remove debris. Debris in the hydraulic fluid can damage the polished surfaces and precision-fit components of this pump.
2. Remove the filler cap and insert a clean funnel with a filter.
3. Fill the reservoir with hydraulic fluid to 2.6 cm (1 in.) from the cover plate.
4. Replace the filler cap. Verify the breather-hole is open, if applicable.

## Hydraulic Connections

1. Clean the areas around the fluid ports of the pump and cylinders.
2. Inspect all threads and fittings for signs of wear or damage, replace as needed.
3. Clean all hose ends, couplers or union ends.
4. Remove the dust cap from the hydraulic fluid outlets.
5. Connect the hose assembly to the hydraulic fluid outlet, and couple the hose to the cylinder.



**CAUTION:** To prevent personal injury from leaking hydraulic fluid, seal all hydraulic connections with a high-quality, non-hardening, pipe thread sealant.



**IMPORTANT:** Sealant tape or non hardening sealer tape can be used to seal hydraulic connections if only one layer of tape is used. Apply tape carefully, two threads back, to prevent it from being pinched by the coupler and broken off inside the system. Loose pieces of sealant could travel through the system and obstruct the flow of fluid or cause jamming of precision-fit parts.

## Electric Motor Operation



**Warning:** Electrical work must be performed and tested by a qualified electrician per local directives and standards.

The electric motor is wired for nominal 115 or nominal 230 volts, 50/60 Hz. Nominal 230 volt electric motors are shipped without a plug attached. Please obtain and install the applicable plug for your area.

## Initial Setup continued

1. See Figure 2. Verify the system pressure manual release valve is in the hold (lever towards the motor) position.

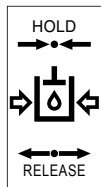


Figure 2. Hold Position

2. See Figure 3. Connect the power cord to an appropriate power source.



Figure 3. Connected to a Power Source

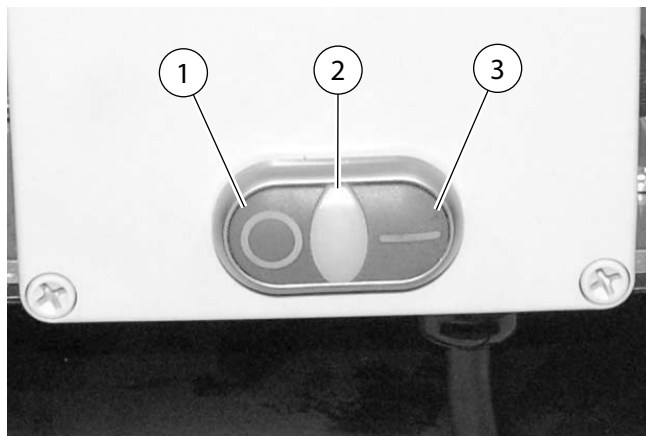
### Caution:

- The correct voltage is required for the pump to operate. Verify the voltage rating on the pump motor name plate matches the outlet or power source you are using. Low voltage may cause: an overheated motor; a motor that fails to start under load; motor surging when trying to start; or a stalled motor before maximum pressure is reached.
- Check the voltage at the motor with the pump running at full pressure.
- Never run the motor on long, light gauge extension cords. Refer to Table 2. Minimum Recommended Gauge Table.

AMPS at Maximum Hyd. Pressure	Electrical Cord Size AWG (mm <sup>2</sup> ) 3.2 Volt Drop Length of Electrical Cord							
	mm <sup>2</sup>				AWG			
	0-8 m	8-15 m	15-30 m	30-46 m	0-25 ft	25-50 ft	50-100 ft	100-150 ft
6	0.75	1	1.5	2.5	18	16	14	12
10	0.75	1.5	2.5	4	18	14	12	10
14	1	2.5	4	6	16	12	10	8
18	1.5	2.5	6	6	14	12	8	8
22	1.5	4	6	10	14	10	8	6
26	2.5	4	6	10	12	10	8	6
30	2.5	4	10	16	12	10	6	4

Table 2. Minimum Recommended Gauge Table

3. See Figure 4. Press the START (green) switch. Lamp (white) will illuminate and power is supplied to the pendant.



Item	Description
1	Stop (Red)
2	Lamp (White)
3	Start (Green)

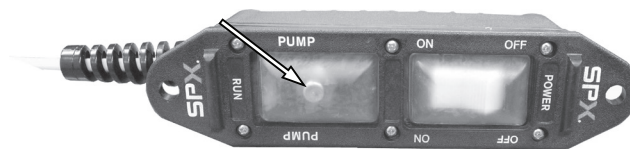
**Figure 4. Power Switch**

4. See Figure 5. Using the pendant, press the POWER rocker switch to ON.



**Figure 5. Power ON**

5. See Figure 6. Press and hold the PUMP RUN switch. The pendant will start and run the pump motor as long as the pump run switch is pressed. Switch will automatically return to OFF position when switch is released and pump motor will turn off.

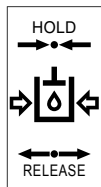


**Figure 6. Pump RUN**

6. See Figure 4. Press the STOP (red) switch to remove power from the pendant.

## Initial Setup continued

- See Figure 7. To release the pressure, rotate the system pressure manual release valve to the release (lever away from the motor) position.



**NOTE: Pressure is retained until it is released with the system pressure release valve lever.**



**Figure 7. Release Position**

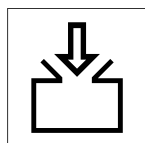
- See Figure 8. Disconnect the power cord.



**Figure 8. Disconnected from Power Source**

### Bleeding Air from the System

- Cycle the hydraulic system until operation is smooth and consistent.
- Check the pump reservoir level. Add Power Team hydraulic fluid or equivalent as needed.



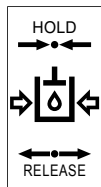
Air can accumulate in the hydraulic system during the initial set-up or after prolonged use causing the tool to respond slowly or in an unstable manner. To remove the air:

- See Figure 9. Open the filler cap two full turns.



**Figure 9. Filler Cap**

- See Figure 10. Place the system pressure manual release valve in the hold (lever towards the motor) position.



- Make the necessary hydraulic system connections.



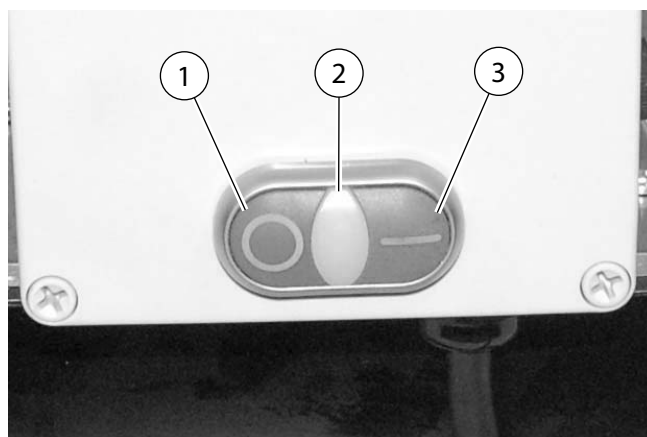
**Figure 10. Hold Position**

- See Figure 11. Connect the power cord to an appropriate power source.



**Figure 11. Connected to Power Source**

- Refer to Figure 12. Press the START (green) rocker switch. Lamp (white) will illuminate and power is supplied to the pendant.



Item	Description
1	Stop (Red)
2	Lamp (White)
3	Start (Green)

**Figure 12. Power Switch**

- See Figure 13. Using the pendant, press the POWER rocker switch to ON.



**Figure 13. Power ON**

# Initial Setup continued

9. See Figure 14. Using the pendant, press and quickly release the pump run switch to run the motor for about 0.5 second at a time approximately 5-6 times or until the gauge pressure builds pressure consistently.

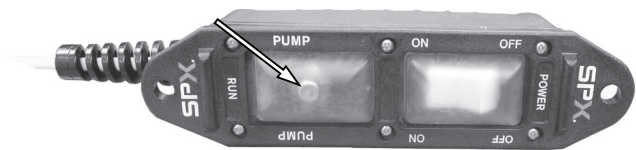


Figure 14. Pump RUN

10. See Figure 15. To release the pressure, rotate the system pressure manual release valve to the release (lever away from the motor) position.

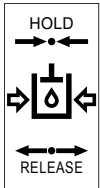
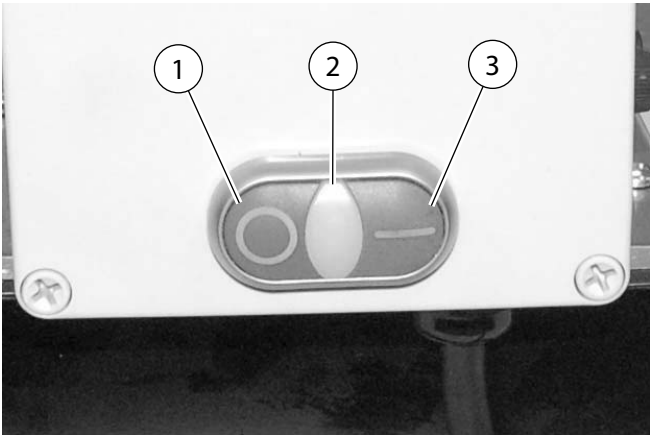


Figure 15. Release Position

11. See Figure 16. Press the STOP (red) switch to remove power from the pendant.



Item	Description
1	Stop (Red)
2	Lamp (White)
3	Start (Green)

Figure 16. Power Switch



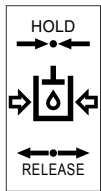
# Operating Instructions

1. See Figure 17. Open the filler cap two full turns to vent the reservoir.



Figure 17. Filler Cap

2. See Figure 18. Place the system pressure manual release valve in the hold (lever towards the motor) position.



3. Make the necessary hydraulic system connections.

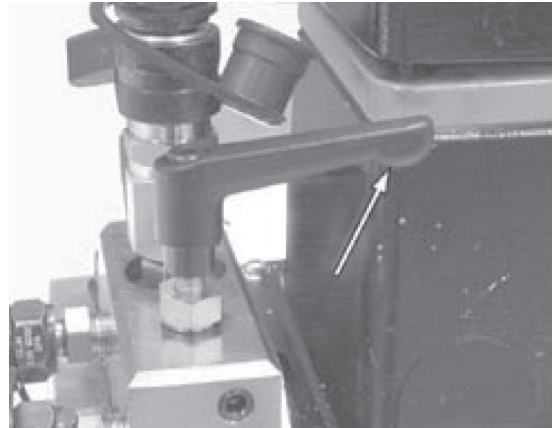


Figure 18. Hold Position

4. See Figure 19. Connect the power cord to an appropriate power source.



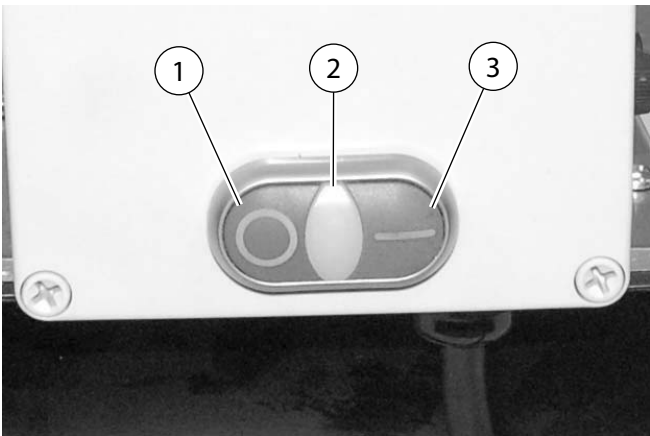
**WARNING:** To help prevent personal injury, check the voltage rating on the motor nameplate to be sure the outlet has the appropriate voltage.



Figure 19. Connected to Power Source

# Operating Instructions continued

5. Refer to Figure 20. Press the START (green) switch. Lamp (white) will illuminate and power is supplied to the pendant.



Item	Description
1	Stop (Red)
2	Lamp (White)
3	Start (Green)

Figure 20. Power Switch

6. See Figure 21. Using the pendant, press the POWER rocker switch to ON.
7. See Figure 22. Press and hold the PUMP RUN switch. The pendant will start and run the pump motor as long as the pump run switch is pressed. Switch will automatically return to OFF position when released and pump motor will turn off. Pressure will hold until the system pressure manual release lever is moved to the release (handle away from the motor position).

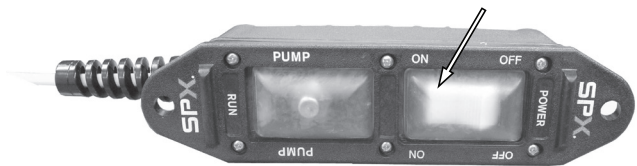


Figure 21. Power ON

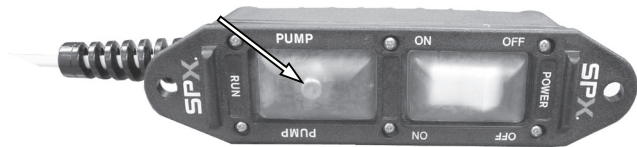


Figure 22. Pump RUN

8. See Figure 23. To release the pressure, rotate the system pressure manual release valve to the release (lever away from the motor) position.

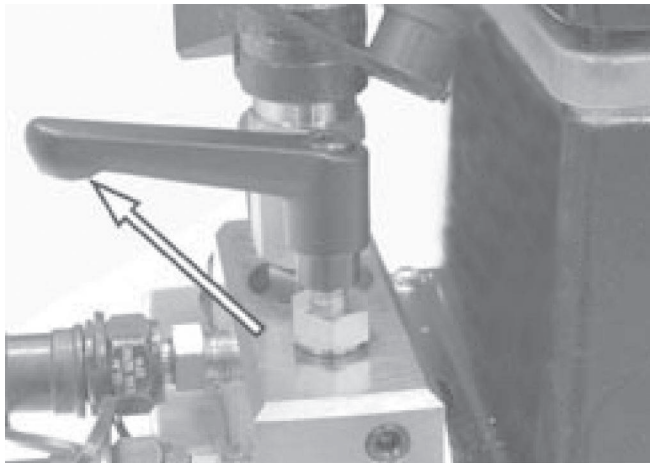
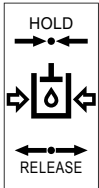
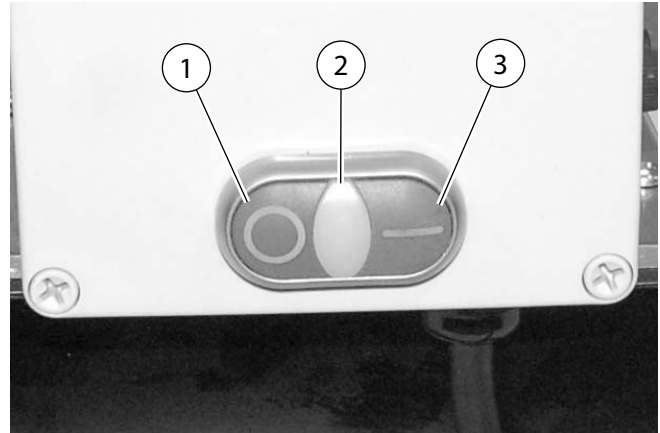


Figure 23. Release Position



9. See Figure 24. Press the STOP (red) switch to remove power from the pendant.



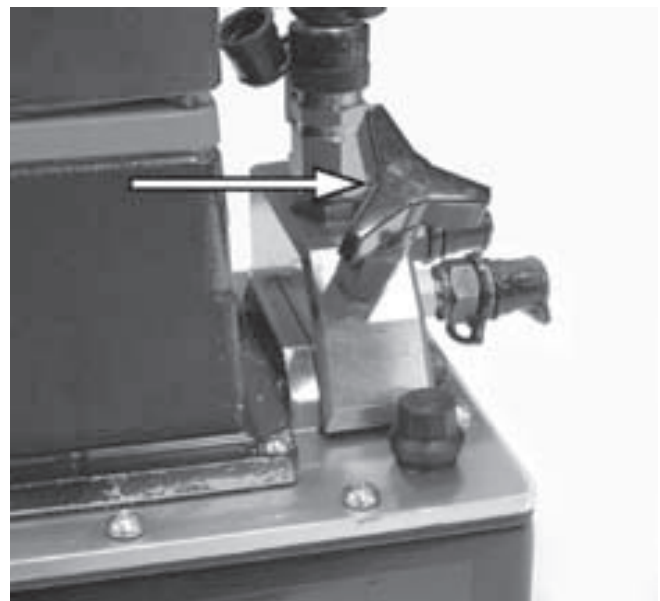
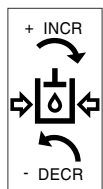
Item	Description
1	Stop (Red)
2	Lamp (White)
3	Start (Green)

**Figure 24. Power Switch**

### Adjusting The Pressure Regulating Valve

*Note: For easy adjustment of the pressure regulating valve, always adjust the pressure by increasing to the desired pressure setting.*

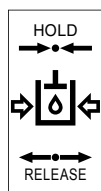
1. See Figure 25. Turn the pressure regulating knob a few turns in the counterclockwise direction. This decreases the pressure.



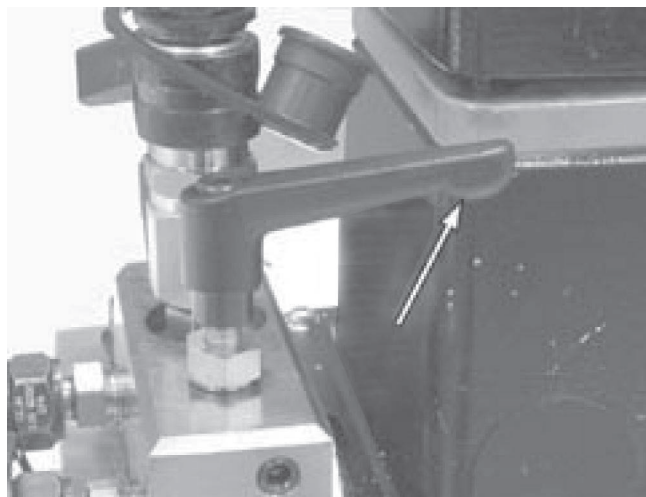
**Figure 25. Pressure Regulating Valve**

## Operating Instructions continued

- See Figure 26. Place the system pressure manual release valve in the hold (lever towards the motor) position.

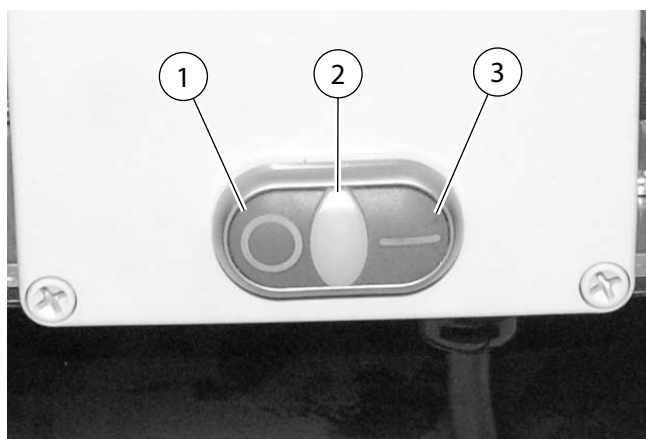


- Verify the pump is completely connected.



**Figure 26. Hold Position**

- See Figure 27. Press the START (green) switch. Lamp (white) will illuminate and power is supplied to the pendant.



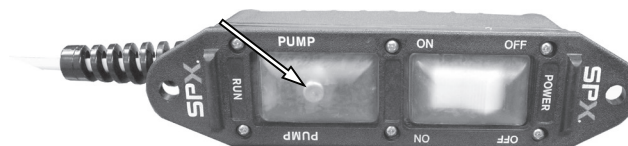
Item	Description
1	Stop (Red)
2	Lamp (White)
3	Start (Green)

**Figure 27. Power Switch**

- See Figure 28. Using the pendant, press the POWER switch to ON.
- See Figure 29. Press and hold the PUMP RUN switch.

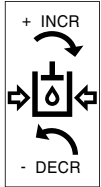


**Figure 28. Power ON**



**Figure 29. Pump RUN**

7. See Figure 30. Slowly turn the adjusting knob in a clockwise direction until the desired pressure is reached.

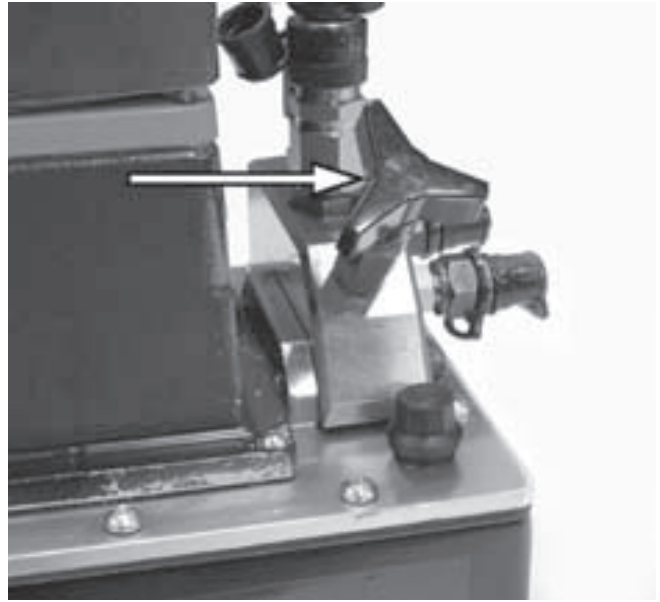


*Note:*

*The pressure range is from 0–1500 bar (0–21,750 psi).*

8. Cycle the system several times to verify the pressure is set correctly.

**NOTE: Pressure is retained until it is released with system pressure manual release lever.**



**Figure 30. Pressure Regulating Valve**

## Performance Specifications

The information in the following charts can be used as a basis to determine if the system is performing as expected during operation.

Pump	RPM	Amp Draw at 1500 bar (21,750 psi) (115V)	Amp Draw at 1500 bar (21,750 psi) (230V)	dB_A at Idle and 1500 bar (21,750 psi)	Air Supply Req'd bar (psi)
PE8 Series	14,000	11	5.5	82-86	N/A

**Table 3. Drive Unit Requirements**

Pump	Max. Pressure Output bar (psi)	Fluid Delivery* (cu. in./min. @)					
		0 bar (0 psi)	17.2 bar (250 psi)	50 bar (700 psi)	70 bar (1,000 psi)	345 bar (5,000 psi)	1500 bar (21,750 psi)
PE8 Series	1500 bar (21,750 psi)	-	168	15-13	15-13	13-11	8-6
* Typical delivery. Actual flow varies with field conditions.							

**Table 4. Fluid Pressure Chart**

# General Maintenance



## WARNING:



- **Disconnect the unit from the power supply before performing maintenance or repair procedures.**
- **Repairs and maintenance are to be performed in a dust-free area by a qualified technician.**

## System Evaluation

The components of your hydraulic system—tools, cylinders, pumps, hoses, and couplings—all must be:

- Rated for the same maximum operating pressure.
- Correctly connected.
- Compatible with the hydraulic fluid used.

A system that does not meet these requirements can fail, possibly resulting in serious injury. If you are in doubt about the components of your hydraulic system, contact SPX Hydraulic Technologies Technical Support.

## Inspection

Keep a dated and signed inspection record of the equipment. Before each use, the operator or other designated personnel should visually inspect for the following conditions:

- Cracked or damaged cylinder or tool.
- Excessive wear, bending, damage, or insufficient thread engagement.
- Leaking hydraulic fluid.
- Scored or damaged piston rod.
- Incorrectly functioning or damaged heads and caps.
- Loose bolts or cap screws.
- Damaged or incorrectly assembled accessory equipment.
- Modified, welded, or altered equipment.
- Bent or damaged couplers or port threads.

## Periodic cleaning



**WARNING: Contamination of the hydraulic fluid could cause the valve to malfunction. Loss of the load/function or personal injury could result.**

Establish a routine to keep the hydraulic system as free from debris as possible.

- Seal unused couplers with dust covers.
- Keep hose connections free of debris. Equipment attached to a cylinder must be kept clean.
- Keep the breather-hole in the filler cap clean and unobstructed.
- Use only Power Team hydraulic fluid or equivalent. Replace hydraulic fluid as recommended, or sooner if the fluid becomes contaminated. Never exceed 300 hours of use between fluid changes.

## Hydraulic Fluid Level

1. Check the fluid level in the reservoir after each 10 hours of use. The fluid level should be 2.6 cm (1 in.) from the top of the fill hole when all cylinders are retracted.
2. Drain, flush, and refill the reservoir with an approved Power Team hydraulic fluid or equivalent after every 300 hours of use. The frequency of fluid changes depends upon general working conditions, severity of use, the overall cleanliness and care given to the pump. Fluid should be changed more frequently when the system is not operated regularly indoors.

## General Maintenance continued

### Draining And Flushing The Reservoir

1. Clean the pump exterior before the pump assembly is removed from the reservoir.
2. See Figure 31. Remove the four screws fastening the motor to the pump assembly.
3. Remove the motor assembly and position aside. Place on a clean cloth to protect the drive gears.

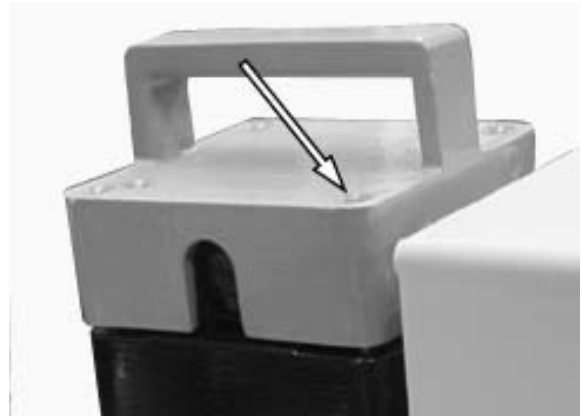


Figure 31. Motor Assembly

4. See Figure 32. Remove the 10 cover plate screws.
5. Remove the pump assembly and position aside. Do not spill the fluid from the pump body.

**Caution: Do not damage the pump filter or pressure regulating valves when lifting the pump and motor off the reservoir.**

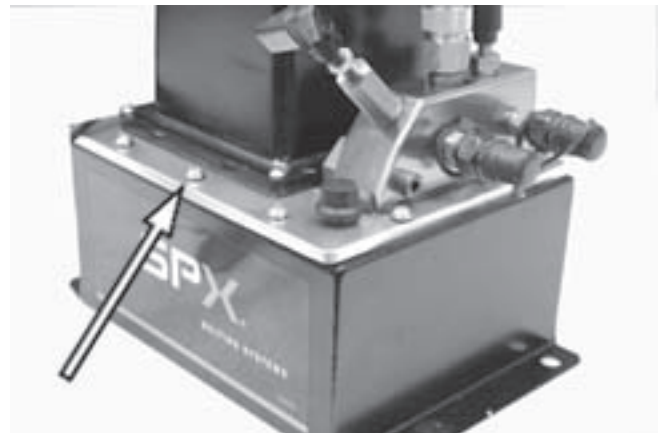


Figure 32. Cover Plate Screws

6. See Figure 33. Clean the inside of the reservoir, and fill with Power Team hydraulic fluid or equivalent. Rinse the filter screen clean.
7. Position the pump assembly and secure with two machine screws assembled on opposite corners of the housing.
8. Position the motor assembly back onto the pump assembly and install the four screws.
9. Remove the filler cap and insert a clean funnel with a filter.

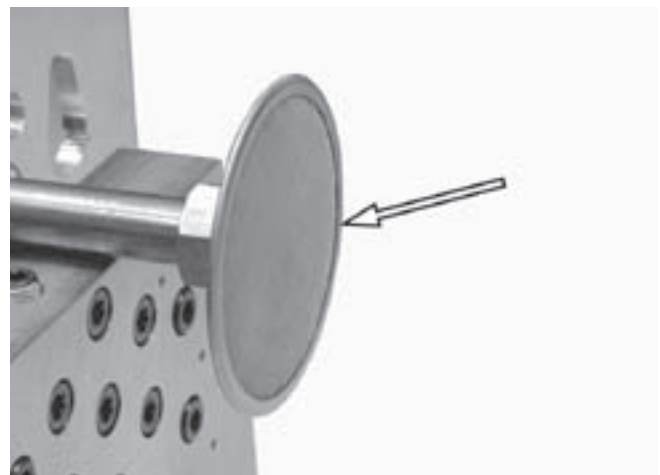
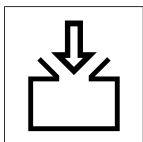
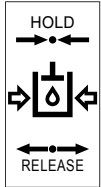


Figure 33. Filter Screen

10. Fill the reservoir with hydraulic fluid to 2.6 cm (1 in.) from the cover plate.

11. See Figure 34. Replace the filler cap. Verify the breather-hole is open, if applicable.
12. With the system pressure manual release valve in the release (lever away from the motor) position, run the pump for 1–2 minutes.
13. Remove the four motor assembly screws and position the motor assembly aside.



**Figure 34. Filler Cap**

14. Remove the two cover plate screws.
15. Remove the pump assembly and position aside.
16. Drain the fluid from the pump housing.
17. Drain and clean the inside of the reservoir.
18. Fill the reservoir. See Filling the Pump Reservoir.
19. See Figure 35. Remove the protective backing and install the new reservoir gasket with the adhesive side down.

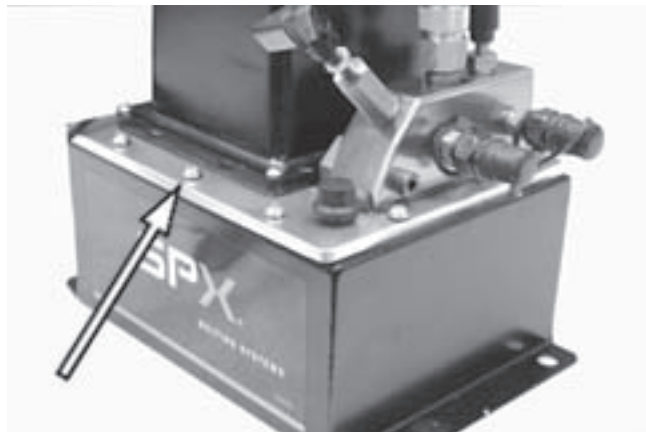


**Figure 35. Reservoir Gasket**



## General Maintenance continued

20. See Figure 36. Position the pump assembly and install the new screws. Tighten screws securely and evenly to 3Nm (30 in/lbs).



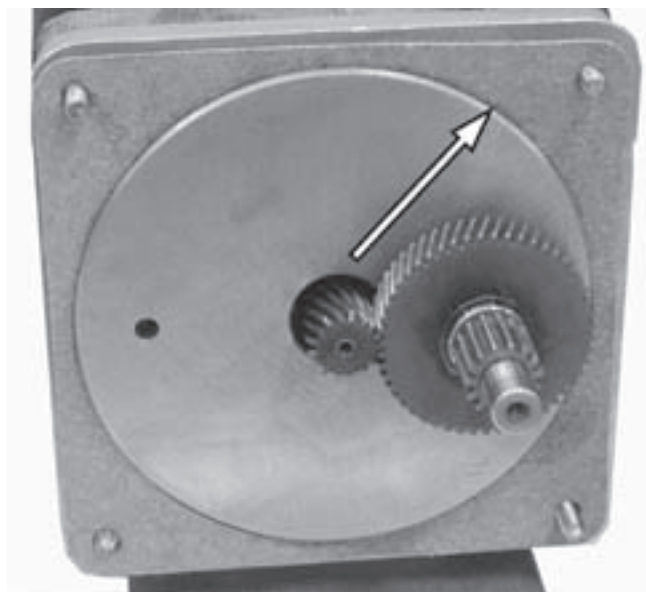
**Figure 36. Cover Plate Screws**

21. See Figure 37. Fill the pump body with approximately 98 ml (3.3 oz) of 80W90 gear oil.



**Figure 37. 80W90 Oil Level**

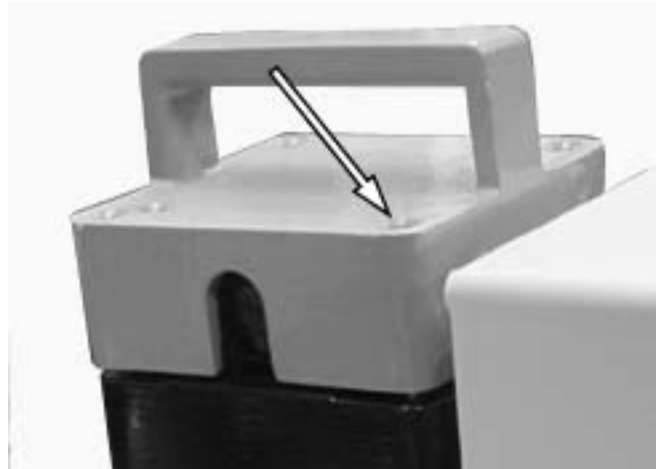
22. See Figure 38. Clean motor gasket surfaces and install new motor gasket.
23. Position the motor assembly back onto the pump assembly.



**Figure 38. Motor Gasket**



24. See Figure 39. Install the four screws and tighten 3Nm (30 in/lbs).



**Figure 39. Motor Assembly**

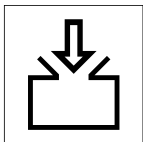
### Adding Hydraulic Fluid To The Reservoir

1. Retract the hydraulic devices.
2. See Figure 40. Disconnect the power supply.



**Figure 40. Disconnected from Power Source**

3. See Figure 41. Clean the entire area around the filler plug.
4. Remove the filler cap, and install a clean funnel with a filter.



5. Use only Power Team hydraulic fluid AW 46 47 cSt @ 38°C (237 SUS @ 100°F) or equivalent. If low temperature requirements are needed, use hydraulic fluid 5.1 cSt @ 100°C (451 cSt @ -40°C). Fill to the proper level.



**Figure 41. Filler Cap**

## General Maintenance continued

### Sound Reduction - Electrically Powered Motor

The electrically powered hydraulic pump operates in the 82-86 dBA range. If further sound reduction is desired, contact SPX Power Team Hydraulic Technology technical support for products more suitable to your application.

### Hose Connections



**CAUTION:** Contamination of the hydraulic fluid could cause the valve to malfunction. Loss of the load/function or personal injury could result.



**IMPORTANT:** Sealant tape or non-hardening sealer tape can be used to seal hydraulic connections if only one layer of tape is used. Apply tape carefully, two threads back, to prevent it from being pinched by the coupler and broken off inside the system. Loose pieces of sealant could travel through the system and obstruct the flow of fluid or cause jamming of precision-fit parts.

### Storage

Store the unit in a dry, well-protected area where it will not be exposed to corrosive vapors, dust, or other harmful elements. If a unit has been stored for an extended period of time, it must be thoroughly inspected before it is used.

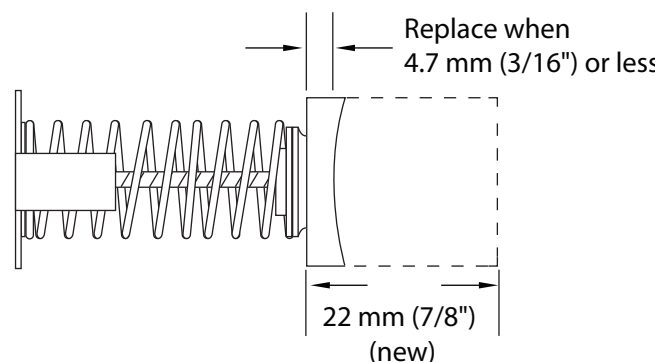
### Checking Brushes on Electric Motors

To help prevent premature failure of the armature, check the brushes every 100 hours or 100,000 pressure cycles:

1. See Figure 42. Remove the brush holder caps and brush assemblies.
2. See Figure 43. The brush assemblies must be replaced if they are 6.35 mm (1/4") in length or less.
3. Install brush assemblies and brush holder caps.



**Figure 42. Brush Holder Caps**



**Figure 43. Brush Inspection**

# Troubleshooting Guide



## WARNING:



- Repair work or troubleshooting must be performed by qualified personnel who are trained and familiar with this equipment.
- Disconnect the power supply before removing the electrical cover. Electrical work should be performed by a qualified electrician.
- Check for system leaks by using a hand pump to apply pressure to the suspect area. Watch for leaking fluid and follow it back to its source. Never use your hand or other body parts to check for a possible leak.

## Notes:

- For a detailed parts list or to locate a SPX Hydraulic Technologies facility, contact your nearest SPX Hydraulic Technologies facility, refer to SPX Hydraulic Technologies Facilities in this document.
- Plug the outlet ports of the pump when checking for leakage to determine if the leakage is in the pump, in the cylinder, or in the tool.

Problem	Cause	Solution
<b>Electric motor does not run.</b>	1. "ON" switch not depressed on control box.	1. Press "ON" switch and white lamp illuminates.
	2. Pump not turned ON.	2. Position switch to RUN position.
	3. Unit is not plugged in.	3. Plug in unit.
	4. No voltage supply.	4. Check line voltage. Check reset button on power panel.
	5. Worn brushes.	5. Replace brushes.
	6. Circuit breaker tripped because total amperage draw too high for existing circuit.	6. Use an alternate circuit or have a qualified electrician add an additional circuit.
<b>Electric motor will not shut off.</b>	1. Defective motor controls.	1. Disconnect unit from power supply; contact a SPX Hydraulic Technologies facility.
<b>Electric motor stalls, surges, overheats, or will not start under load.</b>	1. Low voltage	1. Refer to electric motor information in Initial Setup section.
	2. Electrical cord size too small.	2. Refer to electrical cord chart in Initial Setup section.
	3. Excessive torque load on motor.	3. Contact a SPX Hydraulic Technologies Service Center.
<b>Electrical overload protector keeps tripping.</b>	1. Wired incorrectly.	1. Disconnect unit from power supply; have qualified electrician review motor and circuit wiring.
	2. Excessive torque load on motor.	2. Contact a SPX Hydraulic Technologies Service Center.
<b>Pump delivers excess fluid pressure.</b>	1. Faulty pressure gauge.	1. Replace gauge.
	2. Relief valve set incorrectly.	2. Contact a SPX Hydraulic Technologies facility.

## Troubleshooting Guide continued

Problem	Cause	Solution
<b>Pump is not delivering fluid, or delivers only enough fluid to advance connected components partially or erratically or operation to slow.</b>	1. Fluid level too low.	1. Add fluid, refer to filling the pump reservoir in <i>Initial Setup</i> section.
	2. Loose-fitting coupler to component.	2. Verify quick-disconnect couplings to cylinders are completely coupled. Couplers may need to be replaced because ball check does not stay open due to wear.
	3. Air in system.	3. Refer to <i>Initial Setup</i> in this manual to bleed air from system.
	4. Air leak in suction line.	4. Check and tighten suction line.
	5. Debris in pump or filter plugged.	5. Clean pump filter. If problem persists, disconnect from power supply contact authorized SPX Hydraulic Technologies facility.
	6. Fluid bypasses through the double-acting cylinder (cylinder may be in tool).	6. Remove cylinder; cap hoses. Check pump and valve for leaks.
	7. Cold fluid or fluid too heavy. (Hydraulic fluid is of a higher viscosity than necessary.)	7. Drain, flush, and refill reservoir using a lighter weight fluid. Refer to <i>General Maintenance</i> section.
	8. External relief valve or low pressure unloading valve out of adjustment.	8. Refer to <i>Adjusting the Pressure Regulating Valve</i> .
	9. Power unit/reservoir capacity is too small for the size of the cylinder(s) used.	9. Use smaller cylinder(s) or larger reservoir.
	10. Vacuum in reservoir.	10. Clean plugged vent in filler plug.
<b>Pump builds pressure but cannot maintain pressure.</b>	1. Fluid leakage.	1. Look for external leaks. If no fluid leakage is visible, the problem is internal. If using a double-acting cylinder, remove it from the system to ensure the leak is not in the cylinder. Seal leaking pipe fittings with pipe sealant.
	2. Loose fittings.	2. Tighten fittings.
	3. Internal check is leaking.	3. Contact a SPX Hydraulic Technologies Service Center.

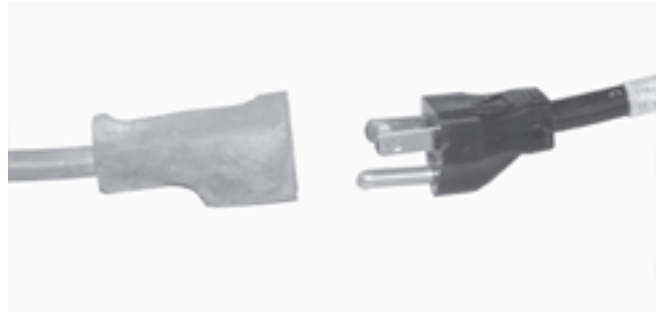
## Troubleshooting Guide continued

Problem	Cause	Solution
<b>Pump does not build to full pressure.</b>	1. Faulty pressure gauge.	<i>1. Replace pressure gauge.</i>
	2. Check for external leakage.	<i>2. Seal faulty pipe fittings with pipe sealant.</i>
	3. Check external pressure regulator. Check relief valve setting.	<i>3. Refer to Adjusting the Pressure Regulating Valve.</i>
	4. Look for internal leakage in double-acting cylinders.	<i>4. Remove cylinder from pump. If pump builds full pressure, cylinder is defective.</i>
	5. Inadequate air pressure (air motor only).	<i>5. Refer to Initial Setup section.</i>
<b>Erratic action</b>	1. Air in system.	<i>1. Check for leaks. Refer to bleeding procedure.</i>
	2. Internal leakage in attached components.	<i>2. Refer to manufacture's information for attached component.</i>
	3. Attached component sticking or binding.	<i>3. Refer to manufacture's information for attached component.</i>
	4. Malfunctioning valve.	<i>4. Verify connections. Contact authorized SPX Hydraulic Technologies facility.</i>

# Repair Procedures

## Fuse Replacement

1. See Figure 44. Disconnect power cord from power source.



**Figure 44. Disconnected from Power Source**

2. See Figure 45. Remove the fuse holder cap.
3. Replace the fuse. On 115V (nominal) replace 15A time delay 250VAC 5x20mm fuse, 230V (nominal) replace 10A time delay 250VAC 5x20mm fuse.
4. To install, reverse the removal procedure.



**Figure 45. External Fuse Holder Cap**

# Parts List

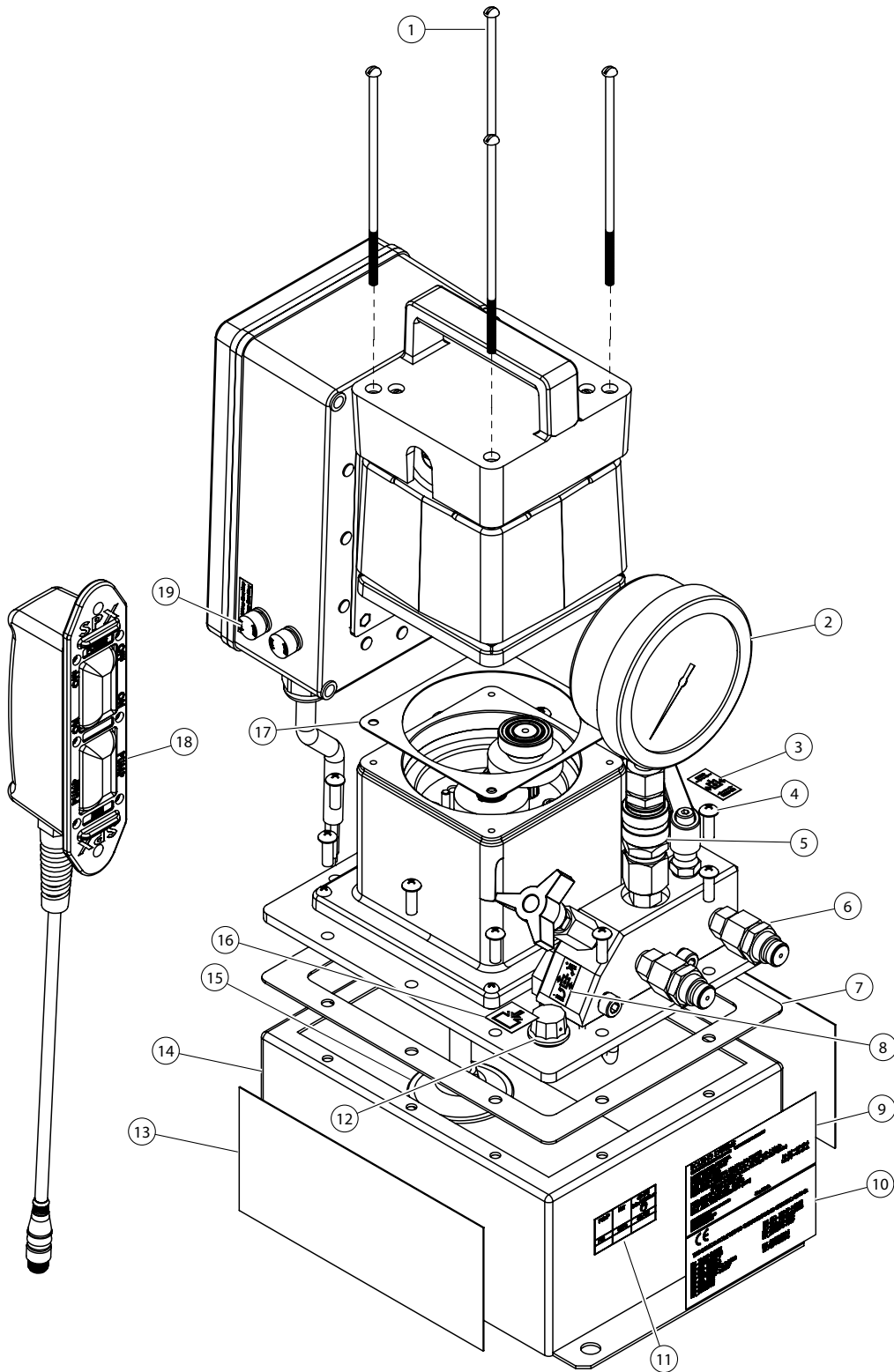


Figure 46. Parts List

## Parts List continued

Item No.	Part No.	No. Req'd	Description
1	12820	4	Screw, Rnd 10-4 x6
2	2002278	1	Gauge, 30,000 PSI 4" DIA
3	1000620	1	Decal, Plas Info CE US Rect 1.25 in.
4	10177	10	Screw, Rnd 1/4-20 x 0.75
5	2002277	1	Coupler, Female Quick Disconnect 150MPA
6	2001772	2	Coupler, Male Quick Disconnect 150MPA
7	2001776	1	Gasket, Reservoir
8	1000621	1	Decal, Plas Info CE US Rect 1.25 in.
9	2002393	1	Decal, Plas Cert CE US RECT 4.75 in. 115V Pumps
9	2002394	1	Decal, Plas Cert CE US RECT 4.75 in. 230V Pumps
10	2002391	1	Decal, Plas Cert CE US RECT 4.75 in.
11	2002392	1	Decal, Plas Cert CE US RECT 1.73 in.
12	251689	1	Cap, Filler Breather
13	2002375	2	Decal, Plas Logo SXBS US Rect 8.75 in.
14	2002376	1	Reservoir, 1 Gal HRZ CTR ST RECT BLK
15	29682	1	Strainer, Flat - 100x90 Mesh
16	1000622	1	Decal, Plas Info CE US Rect 1.06 in.
17	32714	1	Gasket, Pump Body
18	3000618	1	Assy, Pendant Tensioning System
19		2	115V Pumps: 15A TIME DELAY 250VAC 5x20mm Fuse
19		2	230V Pumps: 10A TIME DELAY 250VAC 5x20mm Fuse



# SPX Bolting Systems Facilities



UNITED  
STATES

SPX Hydraulic Technologies  
5885 11th Street  
Rockford, IL 61109-3699  
USA  
Telephone: 1-815-874-5556  
FAX: 1-815-874-7853

Cust. Service/Order Entry  
Tel: 1-800-541-1418  
FAX: 1-800-288-7031  
E-mail:  
info@powerteam.com

Technical Services  
Tel: 1-800-477-8326  
FAX: 1-800-765-8326

CHINA

No. 1568 Hua Shan Road  
International Park Center  
Shanghai 200052, China  
Tel: 86 (21) 2208-5888  
FAX: 86 (21) 2208-5682  
E-mail  
infochina@powerteam.com

FAR EAST

7 Gul Circle  
Singapore 629563  
Singapore  
Tel: (65) 6265-3343  
FAX: (65) 6265-6646  
E-mail:  
infoasia@powerteam.com

EUROPE

Albert Thijsstraat 12  
6471 WX Eygelshoven  
The Netherlands  
Tel: 31 (45) 5678877  
FAX: 31 (45) 5678878  
E-mail  
infoeurope@powerteam.com

For more information, Internet address: <http://www.spxboltingsystems.com>



## EC DECLARATION OF CONFORMITY

Document # 1115

We declare that our "Hydraulic Pump Assembly; electrically powered" Models:

1. PE8LXX3L
2. PE8PXX3L

To which this declaration relates are in conformity with the following:

EN, EN-ISO, ISO standards	Title
Per the provisions of the EMC Directive	2004/108 EC
EN_ISO61000-4-2:2001	Electromagnetic Discharge Immunity test
EN_ISO61000-4-3:2005	Radiated, Radio Frequency, Electromagnetic Field Immunity test
EN_ISO61000-4-4:2001	Electrical Fast Transient / Burst Immunity test
EN_ISO61000-4-5:2001	Surge Immunity test
EN_ISO61000-4-6:2005	Immunity to Conduct Disturbances, Induced by Radio-Frequency Fields
EN_ISO61000-4-11:2004	Voltage Dip and Interrupt test
EN_55011_2007	Industrial, Scientific and Medical (ISM) Radio Frequency Equipment-Electromagnetic Disturbance Characteristics-Limits and Methods of Measurement.

EN, EN-ISO, ISO standards	Title
Per the provisions of the Machinery Safety Directive	2006/42 EC
EN ISO 4413:2010	Hydraulic fluid power — General rules and safety requirements for systems and their components.
EN_ISO 12100-1	Basic concepts, general principles for design - Part 1
EN_ISO 12100-2	Basic concepts, general principles for design - Part 2
EN 13478:2001+A1:2008	Fire prevention and protection
EN ISO 13849-1:2006	Safety-related parts of control systems - Part 1
EN ISO 13849-2:2008	Safety-related parts of control systems - Part 2
EN ISO 14121-1:2007	Risk assessment - Part 1
EN 61310-2:2007	Indication, marking and actuation – Part 2 Requirements of Marking
EN 61310-3:2007	Indication, marking and actuation- Part 3 Location of Actuators

EN, EN-ISO, ISO standards	Title
Per the provisions of the Noise Emission in the Environment by Equipment for Use Outdoors Directive	2000/14 EC

**SPX Hydraulic Technologies**  
5885 11<sup>th</sup> Street  
Rockford, IL 61109-3699  
United States of America

EN\_3200L0014  
ISO 3744:1994

Noise emission in the environment for use outdoors  
Sound Power Level Measurements

**Authorized Representative:**  
**SPX Rail Systems**  
Mr. Iqbal Chadda  
Unit 7, Thames Gateway Park  
Choats Road  
Dagenham, Essex RM9 6RH  
United Kingdom

